

## Development of Custom Products

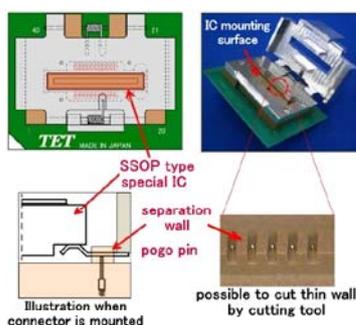
Tokyo Eletech (TET) is trying to comply with customers' individual demand, needless to say, with connector designing technology, but in combination with various other technologies too such as multi-layer, flexible board, molding, mechanical designing and parts mounting.

### Could you find a solution for your development ?

- to replace IC device (from QFP to BGA, from BGA to QFP, or etc.)
- to measure signals of IC device mounted on the board.
- to connect with the existing board without mounting connector.
- to mount another IC device because IC device currently used has been maintained.
- to mount another QFP or BGA device having different number of pins on currently existing foot pattern of the board.

### Development Examples of Custom Products

(1) Tool is not required. Socket for specially shaped package can be made with cutting tool.



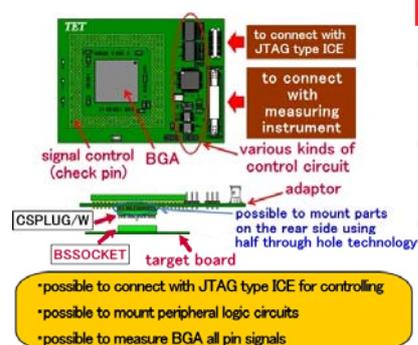
#### 【 Customer's Request 】

- to have high operability construction as IC devices are frequently exchanged.
- to connect without soldering.
- to have firm contact with IC leads.

#### 【 Our Proposal 】

- Clam Shell Type.
- connection with board to board connector.
- Separation wall to avoid short circuit between neighboring pins, and pogo pin to make contact sure.

(2) Conversion Board, having JTAG or Measuring Instrument Interface, to measure all pin signals.



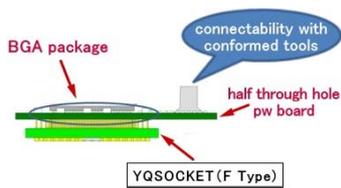
#### 【 Customer's Request 】

- to measure BGA signals mounted on the board.
- to connect with JTAG type ICE for controlling.
- to connect with Measuring Instrument for controlling.

#### 【 Our Proposal 】

- to have advantageous space factor adopting half through hole board, using original BGA foot pattern on the target board.
- In order to satisfy specified resistance, wiring pattern and parts location shall be investigated, utilizing design technology of isometric wiring and others.

### (3) Package Conversion Board miniaturized with half through hole technology



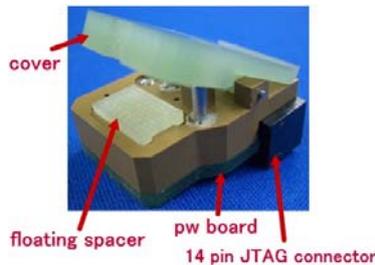
#### 【 Customer's Request 】

- to mount another IC device as the current IC has been maintained.
- to mount other logic circuits or other ICs, maintaining current QFP or BGA foot pattern.

#### 【 Our Proposal 】

- space saving and simple wiring package conversion board by adopting half through hole technology.
- board designing with adjusted impedance.

### (4) Tool to connect with existing pad without connector (without soldering work)



#### 【 Customer's Request 】

- to connect with existing pw board without mounting connector.
- to make positioning easier without any additional modification on existing pw board.
- to keep stable contact with solder ball on the pad.

#### 【 Our Proposal 】

- to propose connector free type.
- counter boring to be made on the tool, not to touch other parts.
- Utilizing mounted parts or pw board as a guide, two pogo pin contact mechanism to a solder ball shall maintain stable contact.

### (5) Low cost BGA socket



#### 【 Customer's Request 】

- to have lower cost BGA socket as scratch on solder ball by plug pin is still acceptable.

#### 【 Our Proposal 】

- to adopt plug pin instead of expensive pogo pin.
- Pin plug is press fitting type, then base material can be also inexpensive FR-4.
- to reduce cost with less parts.

### (6) BGA Socket having lock mechanism with graduation to accept extra device thickness



#### 【 Customer's Request 】

- to accept extra thickness of device caused by production yield and to improve contactability between solder ball and pin.
- to improve work efficiency.

#### 【 Our Proposal 】

- Rotary type knob to be adopted.
- one touch mechanism to be adopted without screwing.
- With torque graduation indicator, torque control is easier.
- Bottom death center stopper mechanism protects BGA device.

### (7) SSOP Conversion Board applying side surface wiring technology



#### 【 Customer's Request 】

- to connect SSOP Pad with BtoB connector, and to connect with emulator or IC device.
- to use existing SSOP pad without modifying.
- to use chip size socket as there are parts around pad.

#### 【 Our Proposal 】

- side surface wiring technology on pw board to realize chip size.
- to reduce width, TET target connector (SICA) to be adopted.

※ applicable not only for SSOP, but for QFP

We will try to comply with customers' requests for any other developments.  
Please contact us.

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